Application No. 09/979,569
Attorney Docket No. PG3707USW

REMARKS / ARGUMENTS

Claims 1-4, 6-41, 79 and 80 are pending. Claims 26, 29-36, 79 and 80 were withdrawn from consideration in a prior amendment.

In this amendment, claim 1 has been amended to better define the invention, claim 19 has been amended to clarify certain claims dependent therefrom, and claim 22 has been amended to eliminate multiple dependencies for the purpose of reducing fees.

1. Claims 20 and 21 are Definite under 35 USC 112, 2nd ¶

Claims 20 and 21 stand rejected under 35 USC 112 as indefinite. Applicant has amended claim 19 (from which claims 20 and 21 depend) to recite that *"the at least one subsequent leveller blade moves along the perforated plate at a level equal to or lower than the level of the first leveller blade."* As one of ordinary skill will readily understand the what is claimed in light of the amended language of claim 19, claims 20 and 21 are "definite" within the meaning of 35 USC 112.

2. US 4481987 to Burns does not anticipate claims 1, 7-8, 14, 18, 24-25, 27-28, 37-38 and 40

BURNS ('987) discloses a method/apparatus for dispensing fine powders, such as reagents. Burns however, does not anticipate claim 1, as it is structured and operates quite differently than the invention of claims 1, 7-8, 14, 18, 24-25, 27-28, 37-38 and 40.

The Burns apparatus:

As shown in FIG. 1 of BURNS, the fine powder 64 is temporarily stored in a storage bin 12 having an opening at its base through which the powder is gravity fed into an elongate slot 21 in an underlying, slidably mounted, dispensing table 36.

As shown by comparing FIG. 2b with FIG. 2c, a slidably mounted push rod 28 is slid leftwards so that a first pusher 50 of the push rod 28 slides the dispensing table 36 horizontally relative to the storage bin 12 so as to place the powder-filled elongate slot 21 over a dispensing plate 16.

As shown in FIG. 2d, the dispensing plate 16 is then moved downwardly, relative to the dispensing table 36, so that an elongate slug 14 of the fine powder is transferred from the elongate slot 21 to the dispensing plate 16.

Referring to FIG. 2e, the push rod 28 is slid rightwards so that a second pusher 44 of the push rod 28 slides the dispensing table 36 back to its starting position to place the elongate slot 21 underneath the opening of the storage bin 12.

As will be gathered from FIG. 2a, the dispensing plate 16 is then raised upwardly back to its starting position whereupon, as shown in FIGS. 2b and 2c, the push rod is slid leftwards again. This results in: a brush 46 of the push rod 28 sweeping along the top surface of the dispensing plate 16 so that the elongate powder slug 21 is swept over apertures 17 in the dispensing plate 16, so that a portion of the powder falls into a series of underlying container units 18, and the excess powder is swept into a waste bin 54; and another elongate powder slug is moved onto the dispensing plate 16 ready for the whole process to be repeated for filling of another series of containers 18.

The claimed method:

Claim 1 as amended requires powder to be directed into a perforation in a perforated plate. The powder is moved by a first leveller blade *non-contactingly spaced* from the first side of the perforated plate and presenting a forward acute angle to the sweeping path of the leveler blade. The perforation into which the powder is directed has to have first and second openings at respective first and second sides of the plate, and the powder has to be directed into the first opening of the perforation *onto a closing member* which is located at the second plate side so as to close off the second opening such that the powder

fills the closed off perforation. The perforation, being closed off, assists in controlling the amount of powder metered. The contents of the perforation is then transferred to the container.

Differences between Burns and the claimed invention:

Burns has potentially two features which may be argued to correspond to the "perforate pate" of claim 1. The first is dispensing plate 16, and the next is dispensing table 36. Taking either of these configurations, BURNS does not anticipate claim 1 or the claims dependent thereon.

Contrary to the examiner's position, dispensing plate 16 does not equate to the "perforate plate" in claim 1. The examiner stated in the official action that "the bottom side openings of plate 16 are considered closed when conveyer 20 delivers containers to the perforation." However, this does not reflect the teachings of the reference. As is clear from FIG. 2b, the apertures 17 in the dispensing plate 16 are not "closed off" when a portion of the powder (slug 14) is swept thereinto. In particular, Fig. 2b depicts the bottom opening of apertures 17 as being distanced from the tubes 18. Even in FIG. 2d, where the powder is on the upper surface of the dispensing plate and distanced from the apertures, the tubes do not close off the underside of plate 16. According to the reference, at col. 3, lines 46-50, the tubes 18 are merely "in alignment with bores 17." As such, the second side of the dispensing plate is not closed off, the plate does not equate to the perforate plate of claim 1, and the tubes 18 do not equate to a "closing member" as used in claim 1.

Furthermore, a construction that equates the dosing plate 16 with the "perforate plate" of claim 1 fails to anticipate the claim, as brush 46 does not correspond to a *"first leveler blade"* which *"is non-contactingly spaced from the first side of the perforated plate and presents a forward acute angle to the sweeping path"* as required by claim 1.

In contrast, brush 46 contacts the dispensing plate 16, and thus does not meet this limitation.

As an alternative interpretation of the BURNS reference, one may question whether the dispensing table 36 of BURNS is a candidate for the "perforate plate" of claim 1. However, careful consideration also reveals the dispensing table does not meet the criteria set forth in the claims. While the lower opening of the elongate slot 21 in the dispensing table 36 is closed off by a fixed table 52 located underneath the dispensing table 36, the storage bin 12 for supply of the powder 64 does not employ any leveler blade, and this does not meet the limitations of claim 1.

Method claim 1 calls for the powder to be directed into the perforation through the first opening "*by the action of moving a first leveller blade on a sweeping path relative to the perforated plate.....wherein.....the first leveller blade is non-contactingly spaced from the first side of the perforated plate and presents a forward acute angle to the sweeping path.*" No such step takes place in BURNS. The storage bin 12 cannot be considered the "first leveller blade" of method claim 1; for instance, it is not spaced from the dispensing table 36.

Accordingly, method claim 1, and the claims dependent thereon, are not anticipated by BURNS ('987), where the BURNS reference is viewed comparing the dispensing plate 16 or dispensing table 36 with the "perforated plate" of the claims.

Clearly BURNS does not anticipate claims 1, 7-8, 14, 18, 24-25, 27-28, 37-38 and 40. Additionally though, one would not be motivated to modify BURNS so as to achieve the claimed invention, so as to render claim 1 obvious. This is because BURNS employs brush 46 in a contacting arrangement with the top surface of the dispensing plate. Brush 46 *must* contact the top surface of the dispensing plate 16 in order to sweep the slug of powder across the upper surface of the dosing plate 16 over the successive apertures 17. In so doing, the powder is swept, in succession, into a series of aligned tubes 18, as depicted in FIG. 2b.

The examiner will appreciate that the amount of powder entering a given tube from the slug of powder passing over the aperture is, apparently, determined by (1) the flow properties of the powder and the (2) the amount of time that the powder slug remains over a given aperture and tube. If the powder flows at a uniform rate into and through each aperture, and if the powder in the slug remains over each aperture for a same amount of time, then the amount of powder entering each successive tube should be the same.

In light of this, control of the amount of time the powder is presented over a given aperture 17 on the upper surface of dispensing plate 16, is critical in controlling the amount of material passed into the tube 18. The brush controls the exposure time of the powder to the apertures by exposing and then removing the powder from the upper surface of the dispensing plate 16, thus defining a fill period. The brush must contact the upper surface of the dispensing plate 16 in order to assure that the powder is accessed by an aperture for this specific period of time and the powder is promptly moved away.

As BURNS operates in a time dependent fashion, any modification of BURNS to raise the brush above the upper surface of the dispensing plate (as claimed in pending claim 1) would eliminate this control, and in doing so negate the very process which assures the that the goal of the invention to the precisely "controlled dispensing of fine powders" recited in the goals of the BURNS invention. (Col. 1, line 48 of BURNS).

As such, one of ordinary skill would not seek to modify the BURNS method and apparatus to that claimed in claim 1. To do so would destroy basic functioning of the metering control of BURNS. To find otherwise would represent an inappropriate hindsight analysis of obviousness (which would rely on the teachings of the present invention to provide impetus to the modification of the prior art).

3. Claim 6, 9, 39 and 41 are not rendered obvious over Burns ('987)

Claim 1 and the claims 6, 9, 39 and 40 which are dependant on claim 1 are not obvious in light of BURNS, whether considered alone or in combination with any other prior art document.

As explained above, BURNS reference discloses in dispensing plate 16 a non-closed of aperture over which a powder is passed by a brush 45 sweeping across the upper surface of a dosing plate. BURNS does not disclose a perforate plate whose second side is closed off while powder is being filled into the perforation by a leveller blade non-contactingly spaced from a perforate plate. Nor would BURNS function as desired is so modified.

BURNS also discloses a dispensing table 36 which does not include a leveler blade non-contactingly spaced from the first side of the table, or need thereof. There is nothing to motivate one to include a leveler blade into storage bin 12, as the level nature of this component is irrelevant to filling the receptacle in table 36.

As claim 1 is not obvious in light of BURNS, claims 6, 9, 39 and 41 cannot be considered obvious as a matter of law. Furthermore, there is nothing to direct one of ordinary skill in the art to select the specific attributes claimed in Claims 6, 9, 39 and 41, considering the very different nature of the BURNS reference and the claimed invention.

Applicant respectfully traverses the examiner's position, and the attempt at taking Official Notice in this instance.

4. Claims 10-13 are Non-obvious over BURNS ('987) in view of AAPA

As previously explained above, a leveller blade as required by method claim 1 is not needed in the BURNS apparatus/method, nor does the BURNS apparatus/method lend itself to modification to incorporate such a structure. As levelling a powder is irrelevant to the functioning of the BURNS reference, the nature of a leveler blade is also irrelevant.

As mentioned above, the importance of the BURNS brush 46 is to sweep the slug 14 across the dispensing plate 16 in order to deliver a uniform amount of powder to each aperture in the array of spaced apertures. Therefore, one would not seek to employ the attributes to which the examiner seeks to take official notice of under AAPA. Moreover, even if employed, such a modification of brush 46 would not lead to the invention claimed in claims 1, 10-13 due to brush 46 contacting the dispensing plate 16. This ground for rejection is respectfully traversed.

5. Claims 19-21 are not rendered obvious by Burns ('987) in view of Morris ('259).

The examiner asserts that it would have been obvious to modify Burns to incorporate multiple leveler blades at separate depths moveable across the surface of the powder, citing MORRIS for this proposal.

MORRIS describes a tray used in a device which meters a relatively non-explosive "premix" powder into primers prior to subsequent treatment rendering the primers useful for munitions.

The MORRIS reference describes an immersion metering system, whereby a tray 3 of powder 4 is positioned below a plate 13 of having an array of tubes 15, having openings in their lower surfaces and defining a cavity 17. The open end of tubes 15 are dipped into the uniformly level powder in the lower tray, thus filling the cavity of the tubes with a slightly compressed slug of premix 5. The slugs 5 in the tubes are passed for further processing, and the emptied tubes are ready for another fill round.

Between rounds of tube immersion into the premix, the premix powder is replenished, mixed and the powder is leveled to the same uniform level as the previously filling step, thus assuring the tubes filled in each decending motion are the same and every other descending motion. MORRIS describes mixing and leveling the premix by use of a premix raking and leveling assembly 18. Assembly 18 comprises a plate 19, with

vertically extending comb 21, a pair of doctor blades 22 and 23 and a level sensor 24. The comb agitates the powder while the blades 22 and 23 level the powder uniformly across its upper surface, as determined by sensor 24.

In order to assure that the powder loaded into the descending tubes is the same from tube to tube in a single descent of the upper tray, as well as between tubes in different round of filling, the consistency and surface level of the powder must by uniform in each case. Because the descending tubes remove a slug from the upper surface of the powder, and compress the powder, the premix bed needs to be refilled, raked to a uniform consistency, and then leveled.

These concerns, however, are irrelevant in BURNS. As mentioned above, the BURNS filling apparatus and method depends on a uniformity of the flow properties of the powder and the time that powder resides over an aperture before it is swept away by brush 46. This time dependency assures that the same amount of powder ends up in each successive tube 18. The uniformity of the level of the powder slug over the dispensing plate 16 is irrelevant to the functioning of the system. In particular, the powder slug could be twice as high over the first aperture in a series of apertures as when the slug is swept over the last aperture in the series, and it would make no difference to the amount dispensed in a given tube. As long as the amount of powder is sufficient to pour the same amount through the first aperature as the last aperature and as long as the time the slug resides over the aperature remains the same, the quantity measured into each aperature will be the same. The level of the powder above each aperture is, however, irrelevant.

Therefore, there is no motivation to include ANY "leveller blade" as used in claim 1, let alone MULTIPLE leveller blades as in claims 19-21. The teachings of MORRIS don't change this. The specific requirements of a uniform level of premix required in MORRIS is not present in BURNS, and therefore MORRIS provides not motivation to modify BURNS as suggested by the examiner.

Further, as a leveller blade as required by method claim 1 is not needed in the BURNS method, the BURNS method would not be benefit from such an inclusion and there would be no motivation to incorporate this attribute into BURNS.

To find otherwise would be a clear use of impermissible hindsight based on the teachings of applicant's patent application. Applicant therefore respectfully asserts that the position that Claims 19-21 are obvious is untenable, and its withdrawal is therefore requested.

6. Claims 1-4, 6-18, 22-25, 27-28, and 37-41 are not rendered Obvious by DWORAK ('144) In View Of BURNS ('987).

DWORAK discloses a compression filler 10. The filler 10 compresses powder 20 into non-aerated pellets and then places the pellets into pouches which are subsequently sealed.

As shown in FIGS 1 and 2 of DWORAK, the filler apparatus has a rotary perforated plate 50 which sealingly rotates over a stationary plate 60. The stationary plate acts to keep the lower openings of the perforations 58 in the perforated plate closed except when the perforations rotate over a slot 64 in a segment of the stationary plate. In this way, powder can be loaded into the perforations when they rotate over the segment of the stationary plate which closes them and then ejected through the slot 64 into pouches 39 moving therebeneath.

The powder is deposited onto the upper surface of the perforated plate from a product feed belt 18. The powder is then manoeuvred into position by a series of plows 84a, and 84b. The powder is moved repeatedly back and forth over the path of chambers 58 by a next series of plows 86a and 86b, before a final wiper 88 pushes the powder one last time over the chambers 58, and into a predetermined recirculating path 20a, thus allowing the remaining powder to be reused in the next rotary path through the filler apparatus.

In the office action, the examiner states that "DWORAK et al does not disclose moveable leveller blades presenting a forward acute angle however Burns teaches a powder dosing

apparatus with multiple leveller blades 46 and 44 moveable across the surface of the powder. It would have been obvious to one of ordinary skill in the art to use the teachings of Burns in the invention of DWORAK et al in order to level the powder over the perforated plate."

Applicants respectfully traverses the examiner's position. First, BURNS teaches a powder dosing device incorporating a brush 46 which sweeps powder across the surface of an open aperture 17. This brush is not a leveller blade *non-contactingly spaced from the first side of the perforated plate* as required in claim 1, as explained in full above. As such BURNS does not provide the teaching to provide the elements of the claim not present in DWORAK.

Secondly, the pusher 44 of BURNS is not a mechanism to effect movement of the powder across the upper surface of the dispensing plate 16. Pusher 44 is a solid structure linked to body 48 which exerts force on the upstanding arm 42 of dispensing table 36 to slide the table rightwards to align the slot 21 of the table 36 with the bottom of the storage bin 12. Therefore, BURNS does not disclose of suggest "multiple leveler blades" as suggested by the examiner.

Thirdly, DWORAK loads the chambers 58 through a series of back and forth movements of the powder in the recirculating path achieved by plows 84, 86 and wiper 88. The back and forth movement of the powder over the chambers 58 is specifically designed to assure that "uniform and thorough filling" which leave the chambers 58 "full and uniform in volume." (DWORAK col. 4, lines 22-35).

Based on the manner that the DWORAK system works, the uniformity of the height of the powder in the recirculating path is completely irrelevant. In fact, as the powder moves back and forth and passes over the chambers 58, its level is likely to rise and fall, as a wave, and not remain constant.

As the level of the powder passing over the chambers 58 is irrelevant to the proper functioning of the filler, one of ordinary skill in the art would not be motivated to incorporate any device for controlling the level of the powder above the rotary perforate plate 50.

In sum, BURNS fails to disclose a leveller blade as recited in claim 1 of the instant application. As such, the combination of DWORAK with BURNS would not teach each limitation of claims 1-4, 6-18, 22-25, 27-28, and 37-41, thus no case of obviousness can be established with this combination of references. Moreover, DWORAK does not benefit from a leveller blade as claimed in the present application, and therefore, one of ordinary skill would not be motivated to modify DWORAK as suggested by the examiner, regardless of what secondary reference is employed.

Withdrawal of the rejection of claims 1-4, 6-18, 22-25, 27-28, and 37-41 based on obviousness over DWORAK in light of BURNS is appropriate and is respectfully requested.

Conclusion

In light of these amendments, all issued raised by the examiner to date have been addressed. As such, the claims are asserted to be in a condition for allowance. Applicant requests that a timely Notice of Allowance be issued in this case. If any matters exist that preclude issuance of a Notice of Allowance, the examiner is requested to contact the applicant's representative at the number indicated below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge any fees or credit any overpayment, particularly including any fees required under 37 CFR Sections 1.16 and/or 1.17, and any necessary extension of time fees, to deposit Account No. 07-1392.

Respectfully submitted,

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James P. Riek

Attorney for Applicant
Reg. No. 39,009
Tel. (919) 483-8022
Fax. (919) 483-7988